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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Docket No: Q62848

Akira SENOO, et al.

Appln. No.: 09/780,480

Group Art Unit: 2834

Confirmation No.: 8117

Examiner: Pedro J. CUEVAS

Filed: January 12, 2001

For: ARMATURE FOR DYNAMO-ELECTRIC MACHINE AND METHOD FOR
MANUFACTURING THE SAME

SUBMISSION OF APPELLANT'S BRIEF ON APPEAL

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an original and two copies of Appellant's Brief on Appeal. A check for the statutory fee of \$320.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

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23373

PATENT TRADEMARK OFFICE

Date: June 2, 2003

Attorney Docket No.: Q62848

TECHNICAL DIVISION 2800
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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

This is an Appeal from the final rejection of November 4, 2002 in Application No. 09/780,480. In accordance with the provisions of 37 C.F.R. § 1.192, Appellants submit the following:

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Mitsubishi Denki Kabushiki Kaisha.

Assignment of the application was submitted to the U.S. Patent and Trademark Office on February 12, 2001, and recorded on the same date at Reel 011546, Frame 0887.

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APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

II. RELATED APPEALS AND INTERFERENCES

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-16 are pending in the application with claims 1-9 withdrawn from consideration as being directed to a non-elected invention. As set forth in the Office Action dated November 4, 2002, claims 10, 11 and 13 are rejected under 35 U.S.C. § 102(b) as being anticipated by Honshima et al. (U.S. Patent No. 4,829,206; hereafter "Honshima"). Further, claims 12 and 15-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Honshima in view of Shiga et al. (U.S. Patent No. 5,508,577; hereafter "Shiga"). Claim 14 is objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form.¹ All of the properly rejected claims are set forth in the attached Appendix.

¹ Claims 15 and 16 should be objected to rather than rejected since the claims are dependent on claim 14 which the Examiner indicates would be allowable if rewritten in independent form.

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

IV. STATUS OF AMENDMENTS

No claim amendments were requested subsequent to the Office Action of November 4, 2002.

V. SUMMARY OF THE INVENTION

The present invention is directed to an armature for a dynamo-electric machine (alternator). (page 1, first full paragraph).

As shown in Figures 1-6 illustrating a first embodiment of the present invention, a stator 10 includes a cylindrical stator core 2 provided with a plurality of slots 2a extending in the axial direction and disposed alongside each other in the circumferential direction, a stator winding 3 mounted on the stator core 2, and insulators 11 disposed in each slot 2a for insulating the stator core 2 from the stator winding 3. (page 14, line 21 - page 15, line 1). Each insulator 11 is formed in a substantially U-shape having a bottom portion 11b connected with side portions which are bent at first bent parts 12 so as to be apart from each other to form outwardly bent portions on the top sides of the side portions. (page 15, lines 1-4). Each insulator includes creases formed by the first bent parts 12 and extending in the longitudinal direction of each slot 2a at the open sides of the side portions thereof. (page 15, lines 7-10). When each substantially U-shaped insulator 11 is inserted in the slot 2a along the inner walls thereof, the outwardly bent

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

portions are deformed at the creases by flanges 2c formed on the edges of teeth 2b so as to be close to each other. (page 15, lines 4-7).

When winding assemblies 7A, 7B, and 7C of the stator winding 3 are received in the slots, the open sides of the slots are enclosed by the top sides of the insulators 11, because each insulator 11 is formed in the substantially U-shape in which the top sides thereof are bent so as to be apart from each other. As a result, the risk of the strands of wire 6 falling out of the slots is avoided during rolling of the laminated core 5, thereby improving the efficiency in the process of rolling the laminated core 5. (page 18, lines 3-9).

In another embodiment illustrated in Figures 23 and 24, a substantially U-shaped insulator 11B has outwardly bent portions 11a formed by first bent parts 12 which are bent so as to be apart from each other and second bent parts 13 which are bent so as to be close to each other. The first and second bent parts 12 and 13 of a first side portion of each insulator 11B are positioned toward the bottom portion 11b of the insulator 11B with respect to the first and second bent parts 12 and 13, respectively, of a second side portion of the insulator 11B, that is, the top edge of the first side portion is formed shorter than that of the second side portion. The distance between the first bent parts 12 of each insulator 11B is smaller than that between the top edges of the outwardly bent portions 11a of the first and second side portions, whereby the overall outwardly bent portions 11a of each insulator 11B are formed toward the outside so as to be apart from each other. (page 30, lines 11-25). When winding assemblies 35A and 35B are inserted in slots 36a, the first and second outwardly bent portions 11a of each insulator 11B

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

overlap each other in the slot-depth direction so as to enclose the open side of each slot 36a. (page 31, lines 22-25).

VI. ISSUES

- (1) Whether independent claim 10 was erroneously rejected under 35 U.S.C. § 102(b) as being anticipated by Honshima?
- (2) Whether dependent claim 12 was erroneously rejected under 35 U.S.C. § 103(a) as being unpatentable over Honshima in view of Shiga?

VII. GROUPING OF CLAIMS

The claims of the present application may properly be considered in two groups that are separately patentable and therefore do not stand or fall together.

The proper grouping of the claims is as follows:

Group 1: Independent claim 10 and dependent claims 11 and 13 stand or fall together.

Group 2: Dependent claim 12 stands alone.

As noted in footnote 1, claims 15 and 16 are not properly rejected as they are dependent upon allowable claim 14.

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

VIII. ARGUMENTS

As an initial matter, Appellant acknowledges that all of the claims relate an armature for a dynamo-electric machine. However, as set forth below, each group is separately patentable because of the limitations therein, and therefore they do not stand and fall together.

Group 1: Independent claim 10 and dependent claims 11 and 13 stand and fall together as they recite first creases are formed on side portions of each insulator.

Group 2: Dependent claim 12 stands alone as it recites the top ends of the first and second side portions of each insulator, one overlapping the other, enclose an opening of each slot in a manner such that the top end of the second side portion is positioned over the top end of the first side portion.

A. Claims 10, 11 and 13 (*Group 1*) are Patentable Over the Prior Art.

Independent claim 10 recites an armature comprising “an insulator mounted in each of the slots for insulating between the armature core and the armature winding, wherein the insulator is disposed between an inner face of each slot and the armature winding.” Claim 10 further requires “first creases are formed on side portions of each insulator so as to extend in a lengthwise direction of the slot at a slot-opening end of the side portions, the first creases being preformed prior to the insulator being mounted in said slots by first bent parts for angling the slot-opening ends of the side portions so as to be apart from each other.” An example of the armature of claim 10 is illustrated in Figures 1-6 of the present application.

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

Appellant respectfully submits that claim 10 would not have been anticipated by or rendered obvious in view of Honshima because the applied reference does not teach or suggest (1) "first creases are formed on side portions of each insulator so as to extend in a lengthwise direction of the slot at a slot-opening end of the side portions", and/or (2) "the first creases being preformed prior to the insulator being mounted in said slots by first bent parts for angling the slot-opening ends of the side portions so as to be apart from each other", as recited in independent claim 10.

Honshima discloses an armature having half-closed slots adapted to prevent a winding inserted in the slots from being displaced. (column 1, lines 8-12). As shown in Figure 1, a laminated iron core 2 is provided with slots 1 each accommodating a plurality of windings 3 which are protected by an insulator 6. (column 2, lines 10-13). Each tooth 8 between an adjacent pair of the slots 1 is provided with anchors 7 having a curved surface projecting inside the slot for preventing the windings 3 from being displaced without damaging the insulator coating on the winding. (column 2, lines 13-20). As shown in Figures 2A-2D, the anchors 7 are fabricated by applying a pressing force P to the end portion of the tooth 8 after the insulator 6 and the winding 3 have been accommodated within the slot 1. (column 2, line 34 - column 2, line 16).

The Examiner maintains that Honshima discloses first creases formed on side portions of insulators where the insulators are bent or curved (denoted by Examiner with reference numeral "101" in partially reproduced figure 1 of Honshima shown on page 3 in the Office Action dated

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

November 4, 2003) by the base portions of anchors when the anchors are formed in the end portion of the tooth. (pages 2-3 of Office Action dated November 4, 2002).

However, Honshima discloses insulators 6 which have curved (rather than creased) portions corresponding to the surface contours of the anchors 7 of the teeth 8. As defined by Webster's Encyclopedic Unabridged Dictionary of the English Language (1996), a "crease" is "a line, mark, or ridge made by or as if by folding a pliable substance". Since the anchors 7 are fabricated by applying a pressing force to the end portion of the tooth 8 after the insulator 6 (having a U-shape with straight sides prior to anchor fabrication) and the winding 3 have been accommodated within the slot 1, the side portions of the insulator 6 are curved along the inner surface of the anchor 7 at the slot-opening side of the side portions when the anchor 7 is formed in the end portion of the tooth 8. Accordingly, Appellant respectfully submits a "crease" is not formed on each slot-opening side of the side portions of the insulator 6.

Further, even if creases are formed on the slot-opening sides of the side portions of the insulator when the anchors were formed in the end portion of the tooth (which Appellant submits is incorrect for the reasons set forth above), the alleged creases are not formed for angling the slot-opening ends of the side portions of the insulators so as to be apart from each other, as claimed. Rather, the alleged creases angle the slot-opening ends of the side portions of the insulators so as to be close to each other.

In response to the "Response to Arguments" section (page 5) of the Office Action dated November 4, 2003, the Examiner asserts that although the claims recite that the first creases are

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

preformed prior to the insulator being mounted in the slots, the limitation has not been given patentable weight because “the method of forming the device is not germane to the issue of patentability of the device itself.” However, Appellant respectfully submits that the Examiner’s position is incorrect because the term “preformed” is not used in the “method” sense in the claims. Rather, the term defines the type of insulators to which the invention is directed, and thus defines the apparatus.

Lastly, Appellant respectfully submits that it is quite clear that Shiga does not teach or suggest those features of claim 10 which are absent from Honshima.

In view of the above, Appellant respectfully submits that independent claim 10, as well as dependent claims 11 and 13, should be allowable because Honshima, alone or in combination with Shiga, does not teach or suggest all of the features of the claims.

B. Claim 12 (Group 2) is Patentable Over the Prior Art.

In addition to the limitations recited in independent claim 10, dependent claim 12 recites “the first crease and the second crease of a first side portion of each insulator are formed shifted toward the bottom of the slot with respect to the first crease and the second crease, respectively, of a second side portion of each insulator, whereby the top ends of the first and second side portions of each insulator, one overlapping the other, enclose an opening of each slot in a manner such that the top end of the second side portion is positioned over the top end of the first side portion.” Appellant respectfully submits that claim 12 would not have been rendered obvious in

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

view of Honshima and Shiga because the combined references do not teach or suggest these features of the claimed invention.

The Examiner contends that Shiga discloses "a first side portion of each insulator are formed shifted toward the bottom of the slot with respect to a second side portion of each insulator, whereby the top sides of the first and second side portions of each insulator, one overlapping the other (Figure 7), enclose an opening of each slot in a manner such that the top side of the second side portion is positioned over the top side of the first side portion." Although Shiga (Figure 7) discloses that a lower coil trunk 536 and an upper coil trunk 533 are accommodated within the slot, wherein the upper coil trunk 533 is covered with an upper insulating film 540, and the upper coil trunk 533 covered with the upper insulating film 540 and the lower coil trunk 536 are covered with a lower insulating film 541, first and second creases are not formed on the slot-opening side of the side portions of the upper and lower insulating films 540 and 541. Further, although the end portion of the lower insulating film 541 overlaps on the end portion of the upper insulating film 540, the end portions of the upper and lower insulating films 540 and 541 do not enclose the opening of the slot.

In response to the "Response to Arguments" section (pages 5 and 6) of the Office Action dated November 4, 2003, the Examiner maintains that "the features upon which Appellant relies (i.e., the end portion of the upper and lower insulating films 540 and 541 do not enclose the opening of the slot) are not recited in the rejected claim(s)." However, claim 12 recites "the top sides of the first and second side portions of each insulator, one overlapping the other, enclose an

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

opening of each slot in a manner such that the top side of the second side portion is positioned over the top side of the first side portion.”

In view of the above, Appellant respectfully submits that claim 12 because Honshima, and Shiga, alone or in combination, do not teach or suggest all of the features of the claim.

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted herewith for the fee required under 37 C.F.R. §1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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PATENT TRADEMARK OFFICE

Date: June 2, 2003

Attorney Docket No.: Q62848

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

APPENDIX

CLAIMS 1-16 ON APPEAL:

10. (Twice Amended) An armature for a dynamo-electric machine, the armature comprising:

an armature core provided with a plurality of slots extending in an axial direction and disposed alongside each other in a circumferential direction;

an armature winding inserted in the slots so as to be mounted on the armature core; and

an insulator mounted in each of the slots for insulating between the armature core and the armature winding,

wherein the insulator is disposed between an inner face of each slot and the armature winding, and first creases are formed on side portions of each insulator so as to extend in a lengthwise direction of the slot at a slot-opening end of the side portions, the first creases being preformed prior to the insulator being mounted in said slots by first bent parts for angling the slot-opening ends of the side portions so as to be apart from each other.

11. (Amended) The armature for a dynamo-electric machine according to Claim 10, wherein second creases are formed on the side portions of each insulator so as to extend in a lengthwise direction of the slot at a location closer to the slot-opening end than the first creases,

APPELLANTS' BRIEF ON APPEAL
UNDER 37 C.F.R. § 1.192
U.S. Appln. No.:

the second creases being formed by second bent parts for angling the slot-opening ends of the side portions toward each other.

12. (Amended) The armature for a dynamo-electric machine according to Claim 11, wherein the first crease and the second crease of a first side portion of each insulator are formed shifted toward the bottom of the slot with respect to the first crease and the second crease, respectively, of a second side portion of each insulator, whereby the top ends of the first and second side portions of each insulator, one overlapping the other, enclose an opening of each slot in a manner such that the top end of the second side portion is positioned over the top end of the first side portion.

13. (Amended) The armature for a dynamo-electric machine according to Claim 10, wherein the side portion of each insulator expand in a circumferential direction at the bottom ends of the side portions of the insulator, thereby coming into close contact with inner faces of the slot toward the bottom thereof.